

- K., E. Orkan im Meerbusen von Bengalen am 27. Oktober 1906. p. 431-434.
- Berichte über Land- und Forstwirtschaft in Deutsch-Ostafrika.* Heidelberg. 3 Band. Heft 3. 1907.
- Lommel, V. [Fünfter Jahresbericht des Kaiserlich Biologisch-Landwirtschaftlichen Instituts Amani für das Etatsjahr 1. April 1906 bis 31. März 1907.] VII. Meteorologisches. p. 48-51.
- Himmel und Erde.* Berlin. 19 Jahrg. Sept. 1907.
- Krebs, Wilhelm. Die sizilische Erdbebenkatastrophe vom 10. und 11. Januar 1693. p. 570-574.
- Meteorologische Zeitschrift.* Braunschweig. Bd. 24. Sept. 1907.
- Schwalbe, G. Ueber "Niederschlagstypen" und ihren Einfluss auf die jährliche Periode des Niederschlages. p. 385-393.
- Henze, H. Beziehungen zwischen den Mittel- und Scheitelwerten der Windgeschwindigkeit in Potsdam. p. 394-405.
- Meissner, Otto. Bewölkung und Sonnenschein in Potsdam (1894 bis 1900). p. 406-417.
- Hann, J[ulius]. Resultate der meteorologischen Beobachtungen zu Loanda. p. 418.
- Arendt, Th. Photographische Registrierung von Luftdruckschwankungen. p. 418-420.
- Hann, J[ulius]. Resultate der meteorologischen Beobachtungen auf Christmas-Insel (Indischer Ozean) im Jahre 1905. p. 422.
- Heidke, P. Resultate der meteorologischen Beobachtungen zu Dar-es-Salam in den Jahren 1893 bis 1902. p. 424-425.
- E., F. M. Messungen der Sonnenstrahlung zu Upsala 1901, von J. Westman. p. 426.
- Madowall, Alex. Luftdruck im Frühling und Herbst. p. 426-427.
- C., V. Ueber einen neuen Flammenkollektor und dessen Prüfung im elektrischen Felde. p. 428-429.
- Chabot, T. Eine neue Registrierungsmethode für meteorologische und geoseismische Instrumente. p. 429-431.
- Resultate der meteorologischen Beobachtungen in Pará im Jahre 1906. p. 431.

- Einige Ergebnisse der meteorologischen Beobachtungen in Gibraltar. p. 432.
- Physikalische Zeitschrift.* Leipzig. 8 Jahrgang. 1 Okt. 1907.
- Kohlrausch, K. W. F. Zur Erklärung der Unipolarität bei atmosphärischen Zerstreuungsmessungen. p. 656-658.
- Wetter.* Berlin. 24 Jahrgang. Aug., 1907.
- Fischer, Karl. Die Verbreitung von Nachrichten über die Wasserstands- und Eisverhältnisse der Flüsse durch den öffentlichen Wetterdienst in Norddeutschland. p. 169-174.
- Gerstmann, Heinrich. Zur Frage einer Wetterscheide in den Alpen. p. 174-178.
- Klengel, Friedrich. Die Niederschlagsverhältnisse von Deutsch-Südwestafrika. p. 178-181.
- Cyran, Georg. Die Trockenheit des Jahres 1893 in Mittel-Europa. p. 182-186.
- Hemel en dampkring.* Den Haag. 5 Jaahrgang. Sept., 1907.
- Monné, A. J. Meteorologische waarnemingen in West-Indië [1905 and 1906]. p. 80-82.
- Società geografica Italiana. Bollettino.* Roma. Ser. 4. v. 8. Ott. 1907.
- Influenza delle foreste sulla velocità dei venti. [Review of article by J. Murat.] p. 1029-1030.

## CORRIGENDA.

In the MONTHLY WEATHER REVIEW for September, 1907, Vol. XXXV, page 392, column 1, footnote, for "vapor" read "water"; page 393, column 1, line 31, for "H. M. Dole" read "R. M. Dole"; page 394, column 1, line —14, for "0.000075" read "0.000076"; page 394, column 1, line —13, for "15" meters read "14.4"; page 396, column 2, line 20, for "Herbert" read "Hubert".

## THE WEATHER OF THE MONTH.

By Mr. P. C. DAY, Assistant Chief, Division of Meteorological Records.

## PRESSURE.

The distribution of mean atmospheric pressure for September, 1907, over the United States and Canada, is graphically shown on Chart VI, and the average values and departures from the normal are shown for each station in Tables I and V.

The average pressure was below the normal for the month over all districts from western Texas northeastward to the Great Lakes and eastward to the Atlantic, except the Florida Peninsula, where the normal was exceeded by small amounts. Over the lower Lakes and St. Lawrence Valley the negative departures ranged from  $-.05$  to  $-.10$  inch.

From the upper Missouri Valley northward into Canada and from the Rocky Mountains to the Pacific the monthly averages of pressure were generally above the normal; the maximum positive departures,  $+.05$  to  $+.10$  inch, covering the districts along the northern border from North Dakota to Washington and extending into the Canadian Northwest Territories.

No marked variation occurred in the positions of the more or less permanent areas of high and low pressure, altho the changes from August conditions were generally more pronounced than the average variations from that month to September. Over nearly all portions of the United States and Canada there is normally a substantial increase in pressure from August to September, due to the cooling of the continental area. During September, 1907, this increase was well-marked over the upper Missouri Valley and thence northward over the Northwest Provinces of Canada, where the increase averaged from  $.10$  to  $.15$  inch. Over the Lake region and Gulf coast the decrease in pressure from that of August ranged from  $.05$  to  $.07$  inch.

With the normal distribution of pressure the surface winds during September along the Atlantic coast from Virginia southward and over the east Gulf States are from the northeast; in the Mississippi Valley and generally over the Plains region they are southerly, while westerly winds prevail along the Pacific coast and generally over most of the Plateau region. During the current month the general decrease of pressure over the Great Lakes and New England, and the slight increase over Florida and surrounding ocean areas were suffi-

cient to deflect the surface winds of the Atlantic coast districts from their prevailing northeasterly course. As a result southerly winds were general over all districts east of the Rocky Mountains, except the upper Missouri Valley and the northern portion of the upper Lakes, where, under the influence of increased pressure over Manitoba and surrounding districts, northerly or westerly winds were generated.

Over the Rocky Mountain and the northern portion of the Plateau regions there was a marked decrease in wind movement, the average hourly velocity ranging from 20 to 30 per cent less than the normal.

## TEMPERATURE.

The variations of the mean temperature of the month from the normal were generally small, except over the upper Missouri Valley and northern Plateau districts, where the deficiency in temperature noted in previous months of the season was continued, making the sixth consecutive month with mean temperature below the seasonal average. Over portions of the above-mentioned districts the departures for the month ranged from  $4^{\circ}$  to  $8^{\circ}$  below the average, and the accumulated deficiency for the six months, April to September inclusive, at points in North Dakota and Montana, amounted to from  $5^{\circ}$  to  $6^{\circ}$  daily.

Average temperatures from  $2^{\circ}$  to  $4^{\circ}$  below the normal occurred over central and northern California and the greater part of Nevada.

Along the Atlantic coast the mean temperatures were about  $2^{\circ}$  above, and over Texas, Arkansas, and Oklahoma they ranged from  $2^{\circ}$  to  $5^{\circ}$  above the seasonal average.

The highest temperatures for the month over the greater part of the Mississippi Valley and the Gulf and South Atlantic coast States occurred on the 1st and 2d; over Arkansas, southwestern Missouri, eastern Kansas, and portions of Texas, about the 7th; over the Plateau districts, about the 9th and 10th; and over the lower Lakes, Ohio, Pennsylvania, New York, and New England on the 15th and 16th.

Maximum temperatures of  $100^{\circ}$  or higher occurred generally over central and northern Texas, Arkansas, Oklahoma, southwestern Arizona, and southeastern California. In Arkansas

the temperatures about the 7th were unusually high, the maximum at Little Rock, 101°, being higher than recorded at that station in any previous September.

The lowest temperatures for the month over Texas and portions of Louisiana occurred generally between the 10th and 12th, over the northern portions of the Plateau and Pacific coast districts on the 13th and 14th, and over the remaining districts east of the Rocky Mountains from the 25th to the end of the month.

Temperatures of 32° or lower, with heavy to killing frosts, occurred at intervals over most of the Rocky Mountain and Plateau districts. On the 25th and 26th temperatures below freezing, with killing frosts, occurred generally over the Plains region from Nebraska and Iowa northward, the upper Mississippi Valley, northern Michigan, exposed points in the Appalachian Mountain regions and New York, and over northern New England.

#### PRECIPITATION.

The distribution of precipitation during September, 1907, is graphically shown on Chart IV by appropriate shading or by figures representing the actual amount of fall.

Heavy precipitation for the season was general over the Lake region, New England, and the interior of the entire Atlantic coast and east Gulf districts. It was especially heavy over the southern and eastern slopes of the Appalachian Mountains, southern New England, western Florida, and the southern portions of Georgia and Alabama, where the amounts ranged from 8 to more than 10 inches.

Heavy precipitation for the season and localities, 4 to 6 inches, occurred locally in the Lake region, the upper Mississippi Valley, western Minnesota, southeastern Nebraska, northern Kansas, and Arkansas.

Amounts generally less than 2 inches were recorded over portions of the central and lower Mississippi Valley, the greater portion of Texas, Oklahoma, southern and western Kansas, western and northern Nebraska, and North and South Dakota. Over the Rocky Mountain, Plateau, and Pacific coast districts, except western Oregon and Washington, northern Idaho, and northwestern Montana, the precipitation for the month was generally less than 1 inch. No rainfall occurred over the greater portion of central and southern California, western Arizona, and southern Nevada.

Precipitation was above normal from 2 to more than 6 inches over the interior of the Atlantic coast States from Maine to Florida and the greater portion of the east Gulf States, over most of which territory a marked deficiency existed at the end of August. Amounts from 2 to 4 inches above the normal occurred generally in the Lake region, portions of the upper Mississippi Valley, and locally in Nebraska, Kansas, and Arkansas.

Deficient rainfall was again the rule, as in August, over the greater part of Texas and the lower Mississippi Valley, where the departures averaged generally more than 2 inches below the normal. At Shreveport, in northern Louisiana, the total fall for the month was less than 3 per cent of the normal, and is the least September rainfall recorded at that station during the past thirty-five years.

Precipitation was also deficient over the greater portion of the lower Ohio and middle Mississippi valleys, the Great Plains south of Nebraska, and from the Rocky Mountains to the Pacific, except portions of western Montana, northern Idaho, and the Puget Sound region of Washington.

#### SNOWFALL.

Snowfall, in small amounts generally, occurred at points in the Sierra Nevada and Rocky Mountain regions, and locally over the northern portion of the States from North Dakota to Michigan, and at isolated points in New York and New Eng-

land. Some unusually heavy falls for so early in the season, 15 to 24 inches, occurred in the high mountains of Montana from the 11th to the 13th.

#### HUMIDITY AND SUNSHINE.

Average relative humidity was in excess of the normal over all districts, except southern Florida, the lower Mississippi Valley, the slope districts from Kansas to Texas, inclusive, and along the immediate Pacific coast from central California to Washington. Over nearly the entire Rocky Mountain and Plateau districts, including central California, the relative humidity was far in excess of the average, despite the general lack of precipitation over that region. A marked excess was also general over the northern tier of States from North Dakota to New England.

Over the greater part of Texas, northern Louisiana, Arkansas, Oklahoma, and Kansas, there was a pronounced deficiency in the average relative humidity, the departures ranging from 5 to nearly 15 per cent below the normal.

An excess of cloudiness was uniform over nearly all districts, except locally in eastern Montana, a small area embracing the eastern portions of Virginia and North and South Carolina, southern Florida, the lower Mississippi Valley, and the greater part of Texas.

From North Dakota eastward over the Great Lakes and New England cloudy weather largely predominated, the excess above the normal ranging from 20 to 50 per cent.

Over the lower Mississippi Valley and the greater portion of Texas and southern Florida, there was a marked absence of clouds and much sunshine prevailed.

#### WEATHER IN ALASKA.

Reports from Alaska show the prevalence of the usual heavy precipitation along the southern coast with much cloudy weather over all parts of the Territory.

Freezing temperatures were of infrequent occurrence prior to the 18th, at which time a rather severe snowstorm appears to have set in over the eastern interior districts continuing several days. The accumulated depth of snow at Circle was reported as 7.5 inches on the 23d, with somewhat less amounts at surrounding points.

#### Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England .....	12	61.6	+ 0.7	-20.0	- 2.2
Middle Atlantic .....	16	68.3	+ 1.7	-11.9	- 1.3
South Atlantic .....	10	75.8	+ 2.6	+ 7.6	+ 0.8
Florida Peninsula * .....	8	80.2	+ 1.1	+12.4	+ 1.4
East Gulf .....	11	76.3	+ 1.5	+16.0	+ 1.8
West Gulf .....	10	78.0	+ 2.6	+19.2	+ 2.1
Ohio Valley and Tennessee .....	13	69.0	+ 0.7	- 2.8	- 0.3
Lower Lake .....	10	62.8	- 0.1	-17.9	- 2.0
Upper Lake .....	12	58.0	- 0.9	-13.2	- 1.5
North Dakota * .....	9	52.6	- 5.0	-27.4	- 3.0
Upper Mississippi Valley .....	15	63.9	- 0.9	- 8.9	- 1.0
Missouri Valley .....	12	64.5	- 0.7	- 3.3	- 0.4
Northern Slope .....	9	55.8	- 1.4	-12.3	- 1.4
Middle Slope .....	6	68.8	+ 1.2	+10.3	+ 1.1
Southern Slope * .....	7	76.8	+ 3.0	+19.2	+ 2.1
Southern Plateau * .....	12	69.1	- 0.4	+ 0.1	0.0
Middle Plateau * .....	10	59.5	- 0.8	+ 5.0	+ 0.6
Northern Plateau * .....	12	57.5	- 1.1	- 8.3	- 0.9
North Pacific .....	7	58.0	+ 1.1	- 0.8	- 0.1
Middle Pacific .....	8	62.2	- 1.7	- 3.9	- 0.4
South Pacific .....	4	65.9	- 1.4	+ 2.7	+ 0.3

\* Regular Weather Bureau and selected cooperative stations.

#### In Canada.—Director R. F. Stupart says :

In British Columbia, exclusive of Cariboo, the temperature was above the average by from 1° to 3°. In the Peninsula of Ontario it was also above the average by an equal amount, but over the large remaining portion of the Dominion a negative departure occurred, except in one of two isolated localities where the average was just maintained. The chief negative departure, amounting to 3°, was experienced in Saskatchewan and Alberta; elsewhere the departure was usually from 1° to 2°.

*Average precipitation and departures from the normal.*

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		<i>Inches.</i>		<i>Inches.</i>	<i>Inches.</i>
New England.....	12	6.98	219	+3.8	-3.1
Middle Atlantic.....	16	6.26	186	+2.9	-2.3
South Atlantic.....	10	5.61	122	+1.0	-8.4
Florida Peninsula*.....	8	8.17	111	+0.8	-6.2
East Gulf.....	11	5.76	149	+1.9	-2.0
West Gulf.....	10	1.88	54	-1.6	-8.7
Ohio Valley and Tennessee.....	13	3.42	121	+0.6	-1.8
Lower Lake.....	10	4.30	154	+1.5	-1.5
Upper Lake.....	12	4.56	154	+1.6	-0.5
North Dakota*.....	9	1.69	131	+0.4	-0.8
Upper Mississippi Valley.....	15	3.02	111	+0.3	+3.1
Missouri Valley.....	12	1.92	71	-0.8	-2.2
Northern Slope.....	9	1.19	109	+0.1	+1.3
Middle Slope.....	6	1.89	95	-0.1	-2.1
Southern Slope*.....	7	1.05	37	-1.8	-2.0
Southern Plateau*.....	12	0.39	39	-0.6	+2.0
Middle Plateau*.....	10	0.60	67	-0.3	+2.2
Northern Plateau*.....	12	1.02	111	+0.1	+2.0
North Pacific.....	7	2.36	95	-0.1	-7.2
Middle Pacific.....	8	0.16	29	-0.4	+2.9
South Pacific.....	4	0.02	9	-0.2	+1.5

\* Regular Weather Bureau and selected cooperative stations.

*In Canada.—Director Stupart says:*

In British Columbia, at Victoria, on Vancouver Island, the rainfall was 45 per cent below the usual amount, but on the mainland it was above the average, the excess varying from 3 per cent in Cariboo to 100 per cent in more southern districts. In the Western Provinces Calgary recorded an excess of precipitation of over 100 per cent, but all other localities gave a deficiency ranging from 1 per cent at Edmonton to 47 per cent at Swift Current, and 67 per cent at Winnipeg. In Ontario, at Parry Sound, the rainfall was 29 per cent less than the usual amount, and at Southampton it was the average, but all other localities recorded a positive departure, which in several districts was as much as from 60 to 80 per cent. In Quebec the rainfall was above the average, and nearly everywhere by about 25 per cent. In the Maritime Provinces Sydney recorded a deficiency of 35 per cent, whilst elsewhere there was a positive departure, the chief departures being St. John, 41 per cent; Chatham, 48 per cent; and Fredericton, 59 per cent.

*Average relative humidity and departures from the normal.*

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England.....	84	+3	Missouri Valley.....	67	+1
Middle Atlantic.....	82	+5	Northern Slope.....	65	+10
South Atlantic.....	82	+2	Middle Slope.....	58	0
Florida Peninsula.....	81	+1	Southern Slope.....	61	-4
East Gulf.....	80	+4	Southern Plateau.....	47	+8
West Gulf.....	71	-3	Middle Plateau.....	41	+7
Ohio Valley and Tennessee.....	76	+4	Northern Plateau.....	52	+2
Lower Lake.....	79	+6	North Pacific.....	78	+1
Upper Lake.....	82	+5	Middle Pacific.....	68	+3
North Dakota.....	75	+9	South Pacific.....	69	+3
Upper Mississippi Valley.....	77	+5			

*Average cloudiness and departures from the normal.*

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England.....	6.8	+1.8	Missouri Valley.....	4.5	+0.5
Middle Atlantic.....	5.6	+0.8	Northern Slope.....	4.4	+0.4
South Atlantic.....	4.7	-0.1	Middle Slope.....	4.0	+0.8
Florida Peninsula.....	4.2	-1.3	Southern Slope.....	3.4	-0.2
East Gulf.....	5.3	+0.9	Southern Plateau.....	2.8	+0.5
West Gulf.....	3.4	-0.9	Middle Plateau.....	3.2	+0.7
Ohio Valley and Tennessee.....	4.9	+0.5	Northern Plateau.....	4.3	+0.2
Lower Lake.....	6.7	+1.9	North Pacific.....	5.7	+0.8
Upper Lake.....	6.9	+1.8	Middle Pacific.....	3.6	+0.8
North Dakota.....	5.0	+0.7	South Pacific.....	2.4	-0.1
Upper Mississippi Valley.....	4.9	+0.7			

*Maximum wind velocities.*

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Amarillo, Tex.....	9	56	w.	Mount Tamalpais, Cal...	30	54	nw.
Buffalo, N. Y.....	11	51	sw.	North Head, Wash.....	15	56	se.
Do.....	24	59	sw.	Do.....	26	52	se.
Duluth, Minn.....	20	52	nw.	Point Reyes Light, Cal.	11	50	nw.
Fort Smith, Ark.....	2	52	w.	Do.....	12	60	nw.
Jacksonville, Fla.....	3	60	sw.	Do.....	27	72	nw.
Do.....	22	54	sw.	Do.....	28	74	nw.
Modena, Utah.....	25	56	sw.	Sand Key, Fla.....	15	52	se.
Mount Tamalpais, Cal...	25	58	nw.	Southeast Farallon, Cal.	28	62	nw.
Do.....	27	74	nw.	Toledo, Ohio.....	24	50	sw.
Do.....	28	60	nw.				